Amendments to the Claims:

Please amend claims 76 and 79, and add new claims 82-91 as set forth below.

1-75. (Canceled)

76. (Currently amended) A method of detecting the presence or absence of a mutation in the sequence of ~~the~~ *PKD2* gene in a human subject, comprising the steps of:

(a) obtaining a polynucleotide sample containing the sequence of *PKD2* gene from a human subject;

(b) comparing the polynucleotide sample to a reference human wild-type *PKD2* sequence; and

(c) determining the differences, if any, between the sequence of *PKD2* gene in the polynucleotide sample and the reference wild-type *PKD2* sequence, wherein the differences are mutations of *PKD2* gene which comprise one or more deletion, insertion, point, or rearrangement mutations; thereby detecting the presence or absence of a mutation in the sequence of *PKD2* gene in a human subject.

77. (Previously presented) The method of Claim 76, wherein the subject is an embryo, fetus, newborn, infant, or adult.

78. (Previously presented) The method of Claim 76, wherein the polynucleotide sample is DNA or RNA.

79. (Currently amended) A method of detecting the presence or absence of a mutation in the sequence of ~~the~~ *PKD2* gene in a human subject, comprising the steps of:

(a) obtaining a polynucleotide sample containing the sequence of *PKD2* gene from a human subject; and

(b) performing sequence analysis of the polynucleotide sample to detect the presence or absence of a mutation in the sequence of ~~the~~ *PKD2* gene of the human subject, wherein the mutation comprises ~~one or more~~ a deletion, insertion, point, or rearrangement mutations.

80. (Previously presented) The method of Claim 79, wherein the subject is an embryo, fetus, newborn, infant, or adult.

81. (Previously presented) The method of Claim 79, wherein the polynucleotide sample is DNA or RNA.

82. (New) A method for determining whether a human is at risk for development of autosomal dominant polycystic kidney disease associated with *PKD2*, said method comprising assaying a nucleic acid sample containing *PKD2* gene from said human to determine the presence or absence of a mutated *PKD2* gene, wherein the presence of a mutated *PKD2* gene is indicative that said human is at risk for development of autosomal dominant polycystic kidney disease associated with *PKD2*.

83. (New) The method of Claim 82, wherein said mutated *PKD2* gene comprises one or more deletion, insertion, point or rearrangement mutation.

84. (New) The method of Claim 82, wherein said assay is selected from the group consisting of: sequence analysis, single strand conformational analysis, restriction enzyme digestion analysis, hybridization and polymerase chain reaction.

85. (New) A method for diagnosing autosomal dominant polycystic kidney disease associated with *PKD2* in a human, said method comprising assaying a nucleic acid sample containing *PKD2* gene from said human to determine the presence or absence of a mutated *PKD2* gene, wherein the presence of a mutated *PKD2* gene is indicative of autosomal dominant polycystic kidney disease in said human.

86. (New) The method of Claim 85, wherein said mutated *PKD2* gene comprises one or more deletion, insertion, point or rearrangement mutation.

87. (New) The method of Claim 85, wherein said assay is selected from the group consisting of: sequence analysis, single strand conformational analysis, restriction enzyme digestion analysis, hybridization and polymerase chain reaction.

88. (New) A method for determining whether a human is negative for autosomal dominant polycystic kidney disease associated with *PKD2*, wherein said method comprises assaying a nucleic acid sample containing *PKD2* gene from said human to determine the presence or absence of a mutated *PKD2* gene, wherein the absence of a mutated *PKD2* gene is indicative that said human is negative for autosomal dominant polycystic kidney disease associated with *PKD2*.

89. (New) The method of Claim 88, wherein said assay is selected from the group consisting of direct sequencing, single strand conformational analysis, restriction enzyme digestion analysis, probe hybridization and polymerase chain reaction.

90. (New) A method of identifying whether a human patient has autosomal dominant polycystic kidney disease associated with *PKD2*, said method comprising determining the presence or absence of a mutated *PKD2* gene in a nucleic acid sample containing *PKD2* gene from said patient, wherein the presence of a mutated *PKD2* gene is indicative that said patient has an increased likelihood of predisposition to autosomal dominant polycystic kidney disease associated with *PKD2*.

91. (New) The method of Claim 90, wherein the presence or absence of a mutated *PKD2* gene is determined by one or more techniques selected from the group consisting of: direct sequencing, single strand conformational analysis, restriction enzyme digestion analysis, probe hybridization and polymerase chain reaction.